Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. (Currently amended) A method of traffic regulation in a packet communication network, the network including a traffic regulator for regulating traffic at the packet level, the traffic regulator including a bucket mechanism, the bucket mechanism including a token bucket associated with a subscriber, the token bucket being configured to receive new tokens at a fill rate and configured with a bucket depth, the method comprising:

handling packets that arrive at the regulator in accordance with the token bucket configuration for the token bucket associated with the subscriber;

measuring a demand placed on the packet communication network by the subscriber; and

dynamically adjusting the token bucket configuration for the token bucket associated with the subscriber based on the demand to affect the way that packets arriving at the regulator are handled.

2. (Original) The method of claim 1 wherein handling packets further comprises:

handling packets that arrive at the regulator based on a current number of tokens present in the token bucket.

3. (Original) The method of claim 2 wherein handling packets further comprises:

handling a particular packet that arrives at the regulator in a normal fashion when the current number of tokens present in the token bucket is sufficient, otherwise, handling the particular packet that arrives at the regulator in a special fashion.

4. (Original) The method of claim 3 wherein the special fashion of packet handling is to drop the packet.

5. (Original) The method of claim 3 wherein the special fashion of packet handling is to assign a classification to the packet.

6. (Original) The method of claim 2 wherein handling packets further comprises:

handling a particular packet that arrives at the regulator based on the current number of tokens present in the token bucket by assigning a classification to the particular packet based on the current number of tokens present.

7. (Original) The method of claim 6 wherein the assigning of the classification takes place in accordance with a predetermined relationship between number of tokens present in the token bucket and appropriate classification.

8. (Original) The method of claim 6 wherein the assigning of the classification takes place in accordance with a probability mass function that determines the probability mass for each classification based on number of tokens present in the token bucket.

9. (Original) The method of claim 1 wherein measuring the demand further comprises:

monitoring the number of tokens present in the token bucket.

10. (Original) The method of claim 9 wherein measuring the demand further comprises:

determining a burst demand based on observations made while monitoring the number of tokens present in the token bucket over a period of time.

11. (Original) The method of claim 1 wherein the bucket mechanism includes a second bucket arrangement associated with the subscriber, and wherein measuring the demand further comprises:

monitoring the second bucket arrangement.

12. (Original) The method of claim 1 wherein measuring the demand further comprises:

measuring the demand placed on the packet communication network by the subscriber for traffic in a different direction than the direction in which traffic is regulated by the subscriber's token bucket.

13. (Original) The method of claim 1 wherein dynamically adjusting further comprises:

modifying the bucket depth.

14. (Original) The method of claim 1 wherein handling packets further comprises:

handling a particular packet that arrives at the regulator based on a current number of tokens present in the token bucket by assigning a classification to the particular packet according to a policy based on the current number of tokens present; and

wherein dynamically adjusting further comprises:

modifying the policy to which the assigning of the classification conforms.

15. (Original) The method of claim 14 wherein the policy to which the assigning of the classification conforms is based on a predetermined relationship between number of tokens present in the token bucket and appropriate classification.

16 (Original) The method of claim 14 wherein the policy to which the assigning of the classification conforms is based on a probability mass function that determines the probability mass for each classification based on number of tokens present in the token bucket.

17. (Currently amended) A method of traffic regulation in a packet communication network, the network including a traffic regulator for regulating traffic at the packet level, the traffic regulator including a bucket mechanism, the bucket mechanism

including a token bucket associated with a subscriber, the token bucket being configured to receive new tokens at a fill rate and configured with a bucket depth, the method comprising:

handling a particular packet that arrives at the regulator based on a current number of tokens present in the token bucket by assigning a classification to the particular packet according to a policy based on the current number of tokens present;

measuring a demand placed on the packet communication network by the subscriber by monitoring the number of tokens present in the token bucket; and

dynamically adjusting the token bucket configuration for the token bucket associated with the subscriber based on the demand to affect the way that packets arriving at the regulator are handled.

18. (Original) The method of claim 17 wherein measuring the demand further comprises:

determining a burst demand based on observations made while monitoring the number of tokens present in the token bucket over a period of time.

19. (Original) The method of claim 17 wherein dynamically adjusting further comprises:

modifying the bucket depth.

20. (Original) The method of claim 17 wherein dynamically adjusting further comprises:

modifying the policy to which the assigning of the classification conforms.

21. (Original) A method of traffic regulation in a packet communication network, the network including a traffic regulator for regulating traffic at the packet level, the traffic regulator including a bucket mechanism, the bucket mechanism including first and second token buckets associated with a subscriber, the first token bucket being configured to receive new tokens at a first fill rate and configured with a first bucket depth, the second token

bucket being configured to receive new tokens at a second fill rate and having a second bucket depth, the method comprising:

handling packets that arrive at the regulator in accordance with the first and second token bucket configurations, wherein the first token bucket uses tokens to regulate the packet flow in terms of packet rate and wherein the second token bucket uses tokens to regulate the packet flow in terms of data rate such that a particular packet is subjected to handling in accordance with both the first token bucket and the second token bucket.

22. (Original) The method of claim 21 further comprising:

measuring a demand placed on the packet communication network by the subscriber; and

dynamically adjusting the token bucket configurations for the subscriber based on the demand.

23. (Original) A method of traffic regulation in a packet communication network, the network including a traffic regulator for regulating traffic at the packet level, the traffic regulator including a bucket mechanism, the bucket mechanism including a token bucket associated with a subscriber, the token bucket being configured to receive new tokens at a fill rate and configured with a bucket depth, the method comprising:

handling packets that arrive at the regulator in accordance with the token bucket configuration, wherein the token bucket uses tokens to regulate the packet flow by removing tokens from the token bucket when handling packets, the amount of tokens to be removed being based on the amount of the flow and being further based on a classification of the flow.

24. (Original) The method of claim 23 wherein the amount of tokens to be removed is based on the amount of the flow in terms of data and is further based on the classification of the flow.

25. (Original) The method of claim 24 wherein the amount of tokens to be removed is based on the amount of the flow in terms of data and a multiplier that is a function of the classification of the flow.

26. (Original) The method of claim 23 wherein the amount of tokens to be removed is based on the amount of the flow in terms of packets and is further based on the classification of the flow.

27. (Original) The method of claim 26 wherein the amount of tokens to be removed is based on the amount of the flow in terms of packets and a multiplier that is a function of the classification of the flow.

28. (Original) The method of claim 23 further comprising:

measuring a demand placed on the packet communication network by the subscriber; and

dynamically adjusting the token bucket configurations for the subscriber based on the demand.

29. (Currently amended) A packet-level device for traffic regulation in a packet communication network, the packet-level device including a traffic regulator for regulating traffic at the packet level, the traffic regulator including a bucket mechanism, the bucket mechanism including a token bucket associated with a subscriber, the token bucket being configured to receive new tokens at a fill rate and configured with a bucket depth, the packet-level device being programmed to:

handle packets that arrive at the regulator in accordance with the token bucket configuration for the token bucket associated with the subscriber;

measure a demand placed on the packet communication network by the subscriber; and

dynamically adjust the token bucket configuration for the token bucket associated with the subscriber based on the demand to affect the way that packets arriving at the regulator are handled.

30. (Original) The device of claim 29 wherein handling packets further comprises:

handling packets that arrive at the regulator based on a current number of tokens present in the token bucket.

31. (Original) The device of claim 30 wherein handling packets further comprises:

handling a particular packet that arrives at the regulator in a normal fashion when the current number of tokens present in the token bucket is sufficient, otherwise, handling the particular packet that arrives at the regulator in a special fashion.

32. (Original) The device of claim 31 wherein the special fashion of packet handling is to drop the packet.

33. (Original) The device of claim 31 wherein the special fashion of packet handling is to assign a classification to the packet.

34. (Original) The device of claim 30 wherein handling packets further comprises:

handling a particular packet that arrives at the regulator based on the current number of tokens present in the token bucket by assigning a classification to the particular packet based on the current number of tokens present.

35. (Original) The device of claim 34 wherein the assigning of the classification takes place in accordance with a predetermined relationship between number of tokens present in the token bucket and appropriate classification.

36. (Original) The device of claim 34 wherein the assigning of the classification takes place in accordance with a probability mass function that determines the probability mass for each classification based on number of tokens present in the token bucket.

37. (Original) The device of claim 29 wherein measuring the demand further comprises:

monitoring the number of tokens present in the token bucket.

38. (Original) The device of claim 37 wherein measuring the demand further comprises:

determining a burst demand based on observations made while monitoring the number of tokens present in the token bucket over a period of time.

39. (Original) The device of claim 29 wherein the bucket mechanism includes a second bucket arrangement associated with the subscriber, and wherein measuring the demand further comprises:

monitoring the second bucket arrangement.

40. (Original) The device of claim 29 wherein measuring the demand further comprises:

measuring the demand placed on the packet communication network by the subscriber for traffic in a different direction than the direction in which traffic is regulated by the subscriber's token bucket.

41. (Original) The device of claim 29 wherein dynamically adjusting further comprises:

modifying the bucket depth.

42. (Original) The device of claim 29 wherein handling packets further comprises:

handling a particular packet that arrives at the regulator based on a current number of tokens present in the token bucket by assigning a classification to the particular packet according to a policy based on the current number of tokens present; and

wherein dynamically adjusting further comprises:

modifying the policy to which the assigning of the classification conforms.

43. (Original) The device of claim 42 wherein the policy to which the assigning of the classification conforms is based on a predetermined relationship between number of tokens present in the token bucket and appropriate classification.

44. (Original) The device of claim 42 wherein the policy to which the assigning of the classification conforms is based on a probability mass function that determines the probability mass for each classification based on number of tokens present in the token bucket.

45. (Currently amended) A packet-level device for traffic regulation in a packet communication network, the packet-level device including a traffic regulator for regulating traffic at the packet level, the traffic regulator including a bucket mechanism, the bucket mechanism including a token bucket associated with a subscriber, the token bucket being configured to receive new tokens at a fill rate and configured with a bucket depth, the packet-level device being programmed to:

handle a particular packet that arrives at the regulator based on a current number of tokens present in the token bucket by assigning a classification to the particular packet according to a policy based on the current number of tokens present;

measure a demand placed on the packet communication network by the subscriber by monitoring the number of tokens present in the token bucket; and

dynamically adjust the token bucket configuration for the token bucket associated with the subscriber based on the demand to affect the way that packets arriving at the regulator are handled.

46. (Original) The device of claim 45 wherein measuring the demand further comprises:

determining a burst demand based on observations made while monitoring the number of tokens present in the token bucket over a period of time.

47. (Original) The device of claim 45 wherein dynamically adjusting further comprises:

modifying the bucket depth.

48. (Original) The device of claim 45 wherein dynamically adjusting further comprises:

modifying the policy to which the assigning of the classification conforms.

49. (Original) A packet-level device for traffic regulation in a packet communication network, the packet-level device including a traffic regulator for regulating traffic at the packet level, the traffic regulator including a bucket mechanism, the bucket mechanism including first and second token buckets associated with a subscriber, the first token bucket being configured to receive new tokens at a first fill rate and configured with a first bucket depth, the second token bucket being configured to receive new tokens at a second fill rate and having a second bucket depth, the packet-level device being programmed to:

handle packets that arrive at the regulator in accordance with the first and second token bucket configurations, wherein the first token bucket uses tokens to regulate the packet flow in terms of packet rate and wherein the second token bucket uses tokens to regulate the packet flow in terms of data rate such that a particular packet is subjected to handling in accordance with both the first token bucket and the second token bucket.

50. (Original) The device of claim 49 further programmed to:

measure a demand placed on the packet communication network by the subscriber; and

dynamically adjust the token bucket configurations for the subscriber based on the demand.

51. (Original) A packet-level device of traffic regulation in a packet communication network, the packet-level device including a traffic regulator for regulating traffic at the packet level, the traffic regulator including a bucket mechanism, the bucket mechanism including a token bucket associated with a subscriber, the token bucket being configured to receive new tokens at a fill rate and configured with a bucket depth, the packet-level device being programmed to:

handle packets that arrive at the regulator in accordance with the token bucket configuration, wherein the token bucket uses tokens to regulate the packet flow by removing tokens from the token bucket when handling packets, the amount of tokens to be removed being based on the amount of the flow and being further based on a classification of the flow.

52. (Original) The device of claim 51 wherein the amount of tokens to be removed is based on the amount of the flow in terms of data and is further based on the classification of the flow.

53. (Original) The device of claim 52 wherein the amount of tokens to be removed is based on the amount of the flow in terms of data and a multiplier that is a function of the classification of the flow.

54. (Original) The device of claim 51 wherein the amount of tokens to be removed is based on the amount of the flow in terms of packets and is further based on the classification of the flow.

55. (Original) The device of claim 54 wherein the amount of tokens to be removed is based on the amount of the flow in terms of packets and a multiplier that is a function of the classification of the flow.

56. (Original) The device of claim 51 further being programmed to:

measure a demand placed on the packet communication network by the subscriber; and

dynamically adjust the token bucket configurations for the subscriber based on the demand.